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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,974	01/29/2004	Yasuhiro Nonaka	P24876	2945
7055	7590	11/07/2005	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			WALSH, RYAN D	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 11/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/765,974	NONAKA ET AL.	
	Examiner	Art Unit	
	Ryan D. Walsh	2852	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10/25/2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

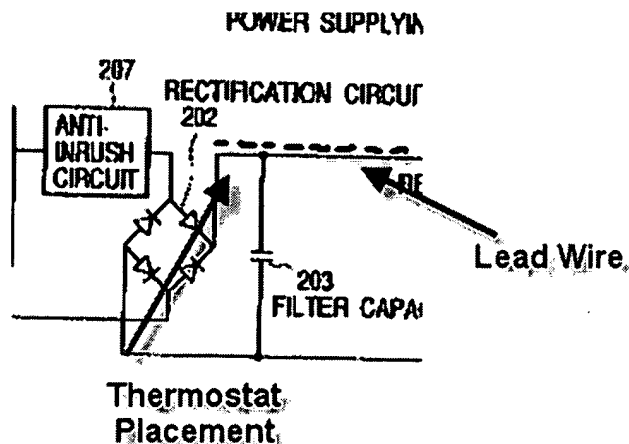
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 5, 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato et al. (US Pub. 2002/0005405) in view of Lee (US Pat. # 4,764,652).

Regarding claims 1 and 10, Sato et al. teach, "a heat generating apparatus comprising: a heat generating member (115), an exciting coil (113) provided opposite to the heat generating member and serving to cause the heat generating member to generate heat by electromagnetic induction; a power circuit comprising a rectifying circuit (202), a resonance circuit (205) and a smoothing circuit (203) and serving to control the supply of the power to the exciting coil, wherein the resonance circuit is connected in parallel with the exciting coil, one end of the smoothing circuit being connected to the resonance circuit and the exciting coil, and another end of the smoothing circuit being directly connected to the rectifying circuit, and a lead wire connecting the exciting coil the thermostat (see figure below for lead wire, Sato et al. do not disclose the thermostat in Fig. 3) and the power circuit;" Sato et al. do not teach, "a

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thermostat provided in the vicinity of the heat generating member and serving to stop supply of [[a]] power to the exciting coil when a temperature abnormality of the heat generating member is detected, wherein the thermostat is electrically connected between the rectifying circuit and the smoothing circuit.” However, Lee teaches, “a thermostat (TS) provided in the vicinity of the heat generating member and serving to stop supply of [[a]] power to the exciting coil when a temperature abnormality of the heat generating member is detected; wherein the thermostat (Lee: see Fig. 1, TS is between 1 and C2) is electrically connected between the rectifying circuit and the smoothing circuit.”

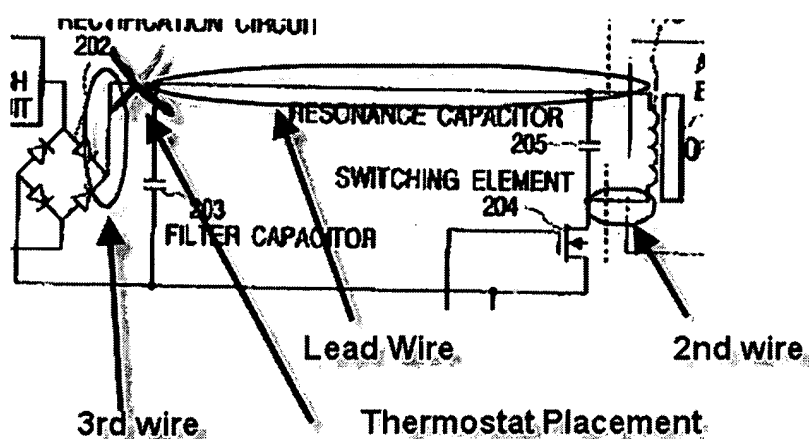


It would have been obvious to one skilled in the art at the time the invention was made to modify Sato et al. invention to include a thermostat provided in the vicinity of the heat generating member and serving to stop supply of [[a]] power to the exciting coil when a temperature abnormality of the heat generating member is detected, wherein the thermostat is electrically connected between the rectifying circuit and the smoothing circuit.

The ordinary artisan would have been motivated to modify Sato et al. invention in a manner described above for at least the purpose of protecting the circuit from an erroneous signal and over temperature protection.

Note: Claim 10 introduces the limitation, "an electromagnetic induction heating fixing apparatus for an image forming apparatus (See Sato et al. (title))."

Regarding claim 2, Sato et al. teach, "wherein the exciting coil is connected to the power circuit with the lead wire and a second lead wire, and the thermostat is connected to the power circuit with the lead wire and a third lead wire (see below)."



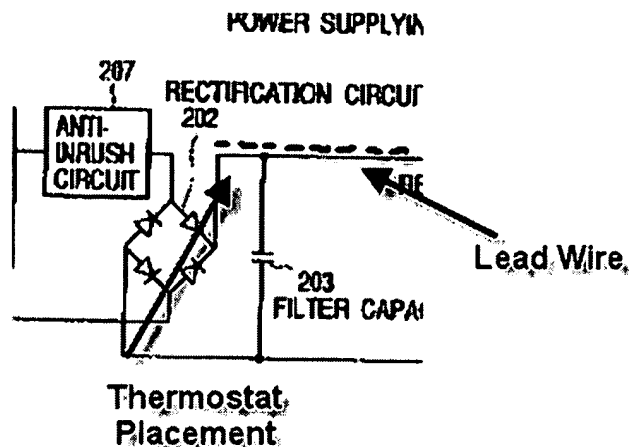
Regarding claim 5, "Sato et al. teach, "a heat generating apparatus comprising: a heat generating member (115), an exciting coil (113) provided opposite to the heat generating member and serving to cause the heat generating member to generate heat by electromagnetic induction; a first power source (121, and Fig. 5, power supply source) for supplying a power to the exciting coil; a power circuit comprising a rectifying circuit (202), a resonance circuit (205) and a smoothing circuit (203) and serving to control the supply of the power to the exciting coil, wherein the resonance circuit is

connected in parallel with the exciting coil, one end of the smoothing circuit being connected to the resonance circuit and the exciting coil, and another end of the smoothing circuit being directly connected to the rectifying circuit; a switching unit (204) for switching ON/OFF of the supply of the power from the first power source to the exciting coil; a second power source (206) for driving the switching unit.” Sato et al. do not teach, “a thermostat for stopping the supply of the power from the first power source to the exciting coil when the heat generating member exceeds a predetermined temperature.” However, Lee teaches, “a thermostat for stopping the supply of the power from the first power source to the exciting coil when the heat generating member exceeds a predetermined temperature (See Fig. 1, ref. character TS).” It would have been obvious to one skilled in the art at the time the invention was made to modify Sato et al. invention to include a thermostat for stopping the supply of the power from the first power source to the exciting coil when the heat generating member exceeds a predetermined temperature.

The ordinary artisan would have been motivated to modify Sato et al. invention in a manner described above for at least the purpose of protecting the circuit from an erroneous signal and over temperature protection.

Regarding claim 11, Sato et al. teach, “An image forming apparatus comprising: a photosensitive member (101); a charger (102) which uniformly charges a surface the photosensitive member to have a predetermined electric potential; an exposing unit (103) which irradiates scanning line of a light beam corresponding to image data on the charged photosensitive member, thereby forming electrostatic latent images; a

developer (104) which develops the electrostatic latent images formed on the photosensitive member; a cleaner (109) which removes a toner remaining on the photosensitive member; and an electromagnetic induction heating fixing apparatus, comprising: a heat generating member (115), an exciting coil (113) provided opposite to the heat generating member and serving to cause the heat generating member to generate heat by electromagnetic induction; a power circuit comprising a rectifying circuit (202), a resonance circuit (205) and a smoothing circuit (203) and serving to control the supply of the power to the exciting coil, wherein the resonance circuit is connected in parallel with the exciting coil, one end of the smoothing circuit being connected to the resonance circuit and the exciting coil, and another end of the smoothing circuit being directly connected to the rectifying circuit; and a lead wire connecting the exciting coil the thermostat (see figure below for lead wire, Sato et al. do not disclose the thermostat in Fig. 3) and the power circuit;.” Sato et al. do not teach, “a thermostat provided in the vicinity of the heat generating member and serving to stop supply of [[a]] power to the exciting coil when a temperature abnormality of the heat generating member is detected, wherein the thermostat is electrically connected between the rectifying circuit and the smoothing circuit.” However, Lee teaches, “a thermostat (TS) provided in the vicinity of the heat generating member and serving to stop supply of [[a]] power to the exciting coil when a temperature abnormality of the heat generating member is detected; wherein the thermostat (Lee: see Fig. 1, TS is between 1 and C2) is electrically connected between the rectifying circuit and the smoothing circuit.”



It would have been obvious to one skilled in the art at the time the invention was made to modify Sato et al. invention to include a thermostat provided in the vicinity of the heat generating member and serving to stop supply of [[a]] power to the exciting coil when a temperature abnormality of the heat generating member is detected, wherein the thermostat is electrically connected between the rectifying circuit and the smoothing circuit.

The ordinary artisan would have been motivated to modify Sato et al. invention in a manner described above for at least the purpose of protecting the circuit from an erroneous signal and over temperature protection.

Claims 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sato et al. (US Pub. 2002/0005405) and Lee (US Pat. # 4,764,652) as applied to claim 5 above, and further in view of Okabayashi (US Pat. 5,794,096).

Regarding claim 6, the combination of Sato et al. and Lee do not teach, "a switching unit voltage detecting circuit which detects that a voltage to be applied to the switching unit exceeds a safe operating voltage range; and a control circuit which



controls a power to be supplied to the coil in response to a detection signal of the switching unit voltage detecting circuit.” However, Okabayashi teaches, “a switching unit voltage detecting circuit (Fig. 36, ref.# 554) which detects that a voltage to be applied to the switching unit exceeds a safe operating voltage range; and a control circuit (Fig. 36, ref.# 525) which controls a power to be supplied to the coil in response to a detection signal of the switching unit voltage detecting circuit.” It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Sato et al. and Lee’s inventions to include a switching unit voltage detecting circuit which detects that a voltage to be applied to the switching unit exceeds a safe operating voltage range; and a control circuit which controls a power to be supplied to the coil in response to a detection signal of the switching unit voltage detecting circuit.

The ordinary artisan would have been motivated to modify the combination of Sato et al. and Lee’s inventions in a manner described above for at least the purpose of protecting the circuit from erroneous signals, and over current protection.

Regarding claim 7, Sato et al. do not teach, “wherein when the switching unit voltage detecting circuit detects that the safe operating voltage range of the switching unit is exceeded, the control circuit limits the supply of the power to the exciting coil to carry out a control in such a manner that the voltage to be applied to the switching unit is maintained within the safe operating voltage range.” However, Okabayashi teaches, “wherein when the switching unit voltage detecting circuit (Fig. 36, ref.# 554) detects that the safe operating voltage range of the switching unit is exceeded, the control circuit (Fig. 36, ref.# 525) limits the supply of the power to the exciting coil to carry out a

control in such a manner that the voltage to be applied to the switching unit maintains a safe operating voltage range limitation (Col. 26,Ln. 31-41).” It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Sato et al. and Lee’s inventions to include wherein when the switching unit voltage detecting circuit detects that the safe operating voltage range of the switching unit is exceeded, the control circuit limits the supply of the power to the exciting coil to carry out a control in such a manner that the voltage to be applied to the switching unit is maintained within the safe operating voltage range.

The ordinary artisan would have been motivated to modify the combination of Sato et al. and Lee’s inventions in a manner described above for at least the purpose of protecting the circuit from erroneous signals, and over current protection.

Regarding claim 8, Sato et al. do not teach, “wherein when the switching unit voltage detecting circuit detects that the safe operating voltage range of the switching unit is exceeded, the control circuit detects the supply of the power to the exciting coil and attenuates the voltage to be applied to the switching unit to a level within a safe operating voltage range.” However, Okabayashi teaches, “wherein when the switching unit voltage detecting circuit (Fig. 36, ref.# 554) detects that the safe operating voltage range of the switching unit is exceeded, the control circuit (Fig. 36, ref.# 525) detects the supply of the power to the exciting coil and makes the voltage to be applied to the switching unit attenuate on an optional level within a safe operating voltage range limitation (Col. 26,Ln. 31-41).” It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Sato et al. and Lee’s

inventions to include wherein when the switching unit voltage detecting circuit detects that the safe operating voltage range of the switching unit is exceeded, the control circuit detects the supply of the power to the exciting coil and attenuates the voltage to be applied to the switching unit to a level within a safe operating voltage range.

The ordinary artisan would have been motivated to modify the combination of Sato et al. and Lee's inventions in a manner described above for at least the purpose of protecting the circuit from erroneous signals, and over current protection.

Regarding claim 9, Sato et al. do not teach, "wherein when the switching unit voltage detecting circuit detects that the safe operating voltage range of the switching unit is exceeded, the control circuit stops the supply of the power to the exciting coil." However, Okabayashi teaches, "wherein when the switching unit voltage detecting circuit (Fig. 36, ref.# 554) detects that the safe operating voltage range of the switching unit is exceeded, the control circuit (Fig. 36, ref.# 525) stops the supply of the power to the exciting coil (Col. 26,Ln. 31-41)." It would have been obvious to one skilled in the art at the time the invention was made to modify the combination of Sato et al. and Lee's inventions to include wherein when the switching unit voltage detecting circuit detects that the safe operating voltage range of the switching unit is exceeded, the control circuit stops the supply of the power to the exciting coil.

The ordinary artisan would have been motivated to modify the combination of Sato et al. and Lee's inventions in a manner described above for at least the purpose of protecting the circuit from erroneous signals, and over current protection.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Sato et al. (US Pub. 2002/0005405) and Lee (US Pat. # 4,764,652) as applied to claim 1 above, and further in view of Akutsu et al. (US Pat. # 6,775,491).

Regarding claim 3, the combination of Sato et al. and Lee do not teach, "wherein the lead wire connects to a connector comprising at least four pins, two of the pins connect the exciting coil to the power circuit, and two of the pins are configured to connect the thermostat to the power circuit, wherein one of the two pins configured to connect the thermostat to the power circuit is designated for a first supply voltage, and the other pin is designated for a second supply voltage, thereby preventing an erroneous connection of the exciting coil to the power circuit." Also, regarding claim 4, the combination of Sato et al. and Lee do not teach, "wherein the lead wire connects to a connector comprising two pins that connect the exciting coil to the power circuit, and two pins configured to connect the thermostat to the power circuit, wherein one of the two pins configured to connect the thermostat to the power circuit is designated for a first supply voltage, and the other pin is designated for a second supply voltage, thereby preventing an erroneous connection of the exciting coil to the power circuit.

However, the connector as explained above is routine in the art as evident to the teaching of Akutsu et al. (Fig. 1, ref. # 6 and 7). The connectors separate the source of power (Fig. 1, ref. # 12) from the thermostats (Fig. 1, ref. # 13 and 14), and also prevent an erroneous connection to the complete circuit. Thus, it would have been obvious to one ordinary skilled in the art at the time of invention was made to modify the

combination of Sato et al. and Lee in a matter described above for at least the purpose to obtain a safer circuit connection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

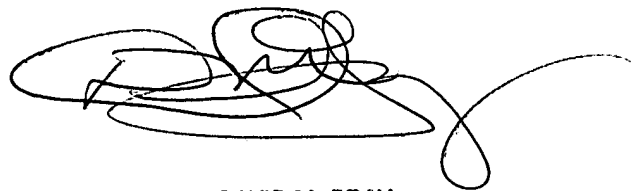
A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan D. Walsh whose telephone number is 571-272-2726. The examiner can normally be reached on M-F 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Gray can be reached on 571-272-2119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ryan D. Walsh  
Patent Examiner  
Art Unit 2852

A handwritten signature in black ink, appearing to read 'D. M. Gray', with a long, sweeping horizontal line extending to the right.

DAVID M. GRAY  
PRIMARY EXAMINER